ORIGINAL DOCKET FILE COPY ORIGINAL

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
Amendment of the Commission's Rules to Establish New Personal Communications Services	)	GEN Docket No. 90-314 ET Docket No. 92-100

RECEIVED
NOV 9 1993
FCC - MAIL ROOM

COMMENTS OF NORTHERN TELECOM

Northern Telecom Inc. ("Northern Telecom") hereby comments on the Emergency Petition of Apple Computer, Inc. ("Apple") that was submitted to the Commission on September 13, 1993. As the Commission recognized, the submission of the proposal only three days before the "sunshine cutoff" meant that the Apple proposal was not subject to meaningful comment.[1/] As detailed below, Northern Telecom urges the Commission to retain the allocations to unlicensed PCS made in the PCS Order, and reject the Apple proposal to favor a very narrow class of unlicensed PCS devices.

Northern Telecom has been very actively involved in the development of unlicensed PCS. Northern Telecom is conducting several tests of unlicensed PCS equipment under experimental licenses issued by the Commission, and has been a participant in

---

1/ Amendment of the Commission's Rules to Establish New Personal Communications Services, GEN Docket No. 90-314, FCC 93-451, released October 22, 1993 ("PCS Order") at para. 92.

No. of Copies rec'd 0+5
List A B C D E

the various PCS proceedings before the FCC. Northern Telecom has also contributed significantly to the industry efforts to develop the necessary etiquettes for unlicensed PCS and to develop a mechanism for clearing the spectrum allocated to unlicensed PCS. Northern Telecom's extensive activities demonstrate that it is very interested in the successful development of the unlicensed PCS market.

Northern Telecom recognizes that the Commission faced a difficult task in the PCS proceeding -- it was required to divide a limited amount of spectrum among numerous competing PCS services, while at the same time accommodating the interests of the incumbent point-to-point licensees in those bands. Northern Telecom believes that the Commission struck a necessary balance when it allocated 40 MHz of spectrum for low-power unlicensed PCS applications, and divided that spectrum evenly between devices that operate in asynchronous (at 1900-1920 MHz) and isochronous (at 1890-1900 and 1920-1930 MHz) transmissions. In making that allocation, the Commission recognized that such a division of the spectrum would result in a sharing among unlicensed PCS applications of the more desirable, lightly loaded 1910-1930 MHz band.[2/]

The Apple Emergency Petition was filed before the Commission reached its decision in the PCS proceeding, and may have been intended to address an anticipated inadequacy in the amount of spectrum that would be available for its proposed devices. In essence, Apple seeks to have 20 MHz of spectrum

---

2/ PCS Order at para. 185.

dedicated to "nomadic" unlicensed PCS devices (with 17.5 MHz assigned to data and 2.5 MHz assigned to voice), and to have the "prime," lightly loaded 1910-1930 MHz band set aside solely for that application. Northern Telecom does not believe that Apple has justified a change to the allocation scheme adopted by the Commission, and in fact the Apple proposal in many important respects would disserve the public interest.

Northern Telecom and Apple both share a vision of PCS that includes a large role for wireless data communications as an integral part of the telecommunications infrastructure. Apple, however, views data services from the narrow perspective of its own technology, and seeks to acquire the choicest spectrum for the exclusive use of that technology. In its spectrum allocation for PCS, however, the Commission should strive to maximize the public interest, not merely the interests of Apple.

The Apple Emergency Petition is based on two fundamental premises that simply are not correct. First, Apple apparently believes that the "nomadic" unlicensed PCS applications will require an exclusive allocation, and will not be able to coexist with other unlicensed PCS devices such as wireless PBXs. As the Commission recognizes, however, the WINForum spectrum etiquette will allow both "nomadic" and "non-nomadic" devices to share the same spectrum through the use of techniques including a "listen-before-talk" protocol and a pause for a specified time in asynchronous transmissions.[3/] Thus, the early deployment of "coordinatible" devices would not in any

---

3/ PCS Order at para. 90.

manner preclude later entry by "nomadic" devices, because no "priority" to the spectrum is established as a result of earlier deployment. Therefore, there is no need for a separate allocation for "nomadic" unlicensed PCS devices.

Second, Apple confuses the need for PCS data communications generally with the need for "peer-to-peer" communications between personal communicators that operate in a nomadic, asynchronous fashion. While Northern Telecom agrees that there will likely be a strong demand for PCS data communications, Northern Telecom does not believe that the record establishes the likelihood of a strong demand for the "peer-to-peer" data communications as suggested by Apple. Certainly there is insufficient evidence of such demand as to warrant an exclusive allocation of 17.5 MHz of the 1910-1930 MHz band for such a narrow application.

Particularly in light of the low-power restrictions placed on unlicensed PCS devices, it is not clear that many types of data communications needs can be met reliably without accessing a "fixed" infrastructure. Using the example posited by Apple of allowing every doctor and nurse to send and receive data as they move about the hospital,[4/] the power limits for unlicensed PCS devices would not support dependable communications beyond a limited range, rendering direct communications among doctors or nurses on different floors of the hospital unreliable. Moreover, the doctors and nurses will presumably need access to patient records or other information

---

4/ Emergency Petition at p. 4.

stored in a central data base, not merely access to the personal communicators carried by other doctors and nurses. Thus, there will be a need for a "fixed" infrastructure to accommodate the communications, and it is unclear the extent to which there will be a significant demand for purely "nomadic" devices. The "fixed" portion of the wireless system can serve to control access to the spectrum, and therefore will allow coordination with the point-to-point microwave users. Thus, for the vast majority of the data communications needs referenced by Apple, it will not be necessary to await the final clearing of the bands before devices can be deployed.

In addition, the allocation scheme adopted by the Commission is well suited to accommodate the demand for PCS data communications. The Commission divides the spectrum between asynchronous and isochronous devices, but does not otherwise limit the communications in the two bands. Northern Telecom believes that the isochronous band will be able to support both data and voice communications, and anticipates that there will be a demand for integrated wireless devices capable of serving both needs. The data communications functionality identified by Apple can therefore be accommodated through the use of isochronous devices as well as through "coordinatible" equipment. The Commission's Rules merely specify the transmission mode, they do not limit the applications of the devices.

The Commission's allocation scheme incorporates the flexibility necessary to accommodate differing levels of demand for different types of unlicensed PCS communications, and thus will allow unlicensed PCS to play a critical role in our nation's

information highways. In any event, it is a corporate decision whether to design equipment intended solely for "nomadic" use, which necessitates the awaiting of clear spectrum throughout the United States before any of that equipment can be marketed. Many applications can be served prior to that time, so that there will be a market for unlicensed PCS equipment almost immediately; whether Apple seeks to serve that market or whether it prefers instead to await the clearing of the band is a business choice of Apple.

In contrast to the flexibility inherent in the Commission's allocation scheme, the Apple proposal would restrict a large portion of the spectrum to accommodate a single use -- peer-to-peer or strictly nomadic data communications, the demand for which is largely speculative. Such a restriction on permissible use of the spectrum is inconsistent with the goals announced by the Commission in allocating spectrum to unlicensed PCS, which include "providing designers with the maximum technical flexibility possible to develop new products to meet consumer needs" and "using the available spectrum efficiently."[5/]

The Apple proposal runs counter to the public interest in other respects as well. As Apple recognizes, it will not be possible to deploy purely nomadic PCS devices until the band is cleared of the incumbent users because of the risk of interference to those point-to-point licensees. However, Apple provides no method for raising the money to clear the spectrum that would allow such deployment. The Apple proposal creates a

---

5/ PCS Order at para. 178.

"chicken-and-egg" problem, since the funding for clearing the spectrum presumably will come from the sale by manufacturers of unlicensed PCS equipment, and there will be little or no sales of "nomadic" equipment before it can be used.

For many unlicensed PCS devices, however, coordination with the incumbent users is possible, which can facilitate the immediate sales of certain types of unlicensed PCS devices. Northern Telecom believes that there is a significant pent-up demand for mobile communications within an office or campus environment that can be met with devices such as wireless PBXs. The expected early deployment of this type of "coordinatible" equipment in turn can fund the UTAM efforts to clear the spectrum, which will allow the deployment of the nomadic devices proposed by Apple.

On the other hand, relegating these "non-nomadic" devices solely to the more crowded 1890-1910 MHz band will render coordination more difficult, thereby potentially delaying for a significant period of time the deployment of these unlicensed PCS devices.[6/] Such a slow-down in turn could very well adversely

---

6/ This problem could be exacerbated by Apple's concurrent proposal to utilize "re-tuning" as an alternative to relocating the incumbent users if those licensees are "re-tuned" into the unlicensed PCS bands that are not reserved for strictly nomadic devices. Unfortunately, the Apple proposal is somewhat vague in this regard, and Northern Telecom has been unable to obtain any greater details from Apple. While there may very well be some merit to the concept of "re-tuning" as a less expensive alternative to relocating, the record is inadequate to allow Northern Telecom to endorse such an option on other than a purely consensual basis among all of the potentially affected parties. Under no circumstances, however, should the Commission mandate that the point-to-point users in certain portions of the unlicensed PCS band be "dumped" into the other portions of the unlicensed PCS bands merely to create clear spectrum for a

(continued...)

affect the economics of deployment, thus threatening the ability of "coordinatible" unlicensed PCS devices to fund the clearing of the bands. In addition, it would likely be more expensive to clear these more crowded bands, since there would be a greater number of users that would need to be relocated. Northern Telecom is concerned that the delays and added costs could render it uneconomic to manufacture non-nomadic unlicensed PCS equipment to operate in the 1890-1910 MHz band, because the "royalty" assessed manufacturers to pay for clearing the band might be prohibitive.

In sum, the Apple proposal apparently is designed solely to benefit Apple by dedicating the choicest spectrum to a limited market that Apple has designed its technology to fulfill. Northern Telecom believes that the Commission's allocation scheme, which evenly divides the spectrum between isochronous and asynchronous transmission devices, and which also assigns one-half of the "prime" 1910-1930 MHz band to each of these technologies, will well serve the public interest. In contrast to the Apple proposal, the Commission's allocation scheme accommodates the needs of both data and voice communications in the unlicensed PCS bands, and provides manufacturers with the maximum technical flexibility possible to develop new products to meet consumer demands. The Commission's proposal will also support an early deployment of "coordinatible" unlicensed PCS devices. Northern Telecom therefore requests that the Commission

---

6/(...continued)
limited application or technology.

dismiss the Apple petition and retain its unlicensed PCS allocation scheme.

Respectfully submitted,

Northern Telecom Inc.

Stephen L. Goodman
Halprin, Temple & Goodman
1301 K Street, N.W.
Suite 1020, East Tower
Washington, D.C. 20005
(202) 371-6000

Of Counsel:

John Lamb, Jr., Esq.
Northern Telecom Inc.
2221 Lakeside Boulevard
Richardson, Texas 75082-4399
(214) 684-8738

Dated: November 8, 1993

CERTIFICATE OF SERVICE

I, Laura E. Magner hereby certify that on the 8th day of November 1993, a true copy of the foregoing Comments of Northern Telecom Inc. was mailed, postage prepaid, to the following:

Apple Computer, Inc.
c/o Mary Dent
Goldberg, Godles, Wiener & Wright
1229 19th Street, N.W.
Washington, D.C. 20036

Associated PCN Company
c/o H. Sturart F. Feldstein, Esq.
Richard Rubin, Esq.
Fleischman and Walsh
1400 16th Street, N.W.
Washington, D.C. 20554

Randall D. Fisher, Esq.
Daniel V. Liberatore, P.E.
Adelphia Communications Corp.
5 West Third Street
Coudersport, Pennsylvania 16915

Terrence P. McGarty
The Telemarc Group, Inc. and
Telmarc Telecommunications Co.
265 Franklin Street
Boston, Massachusetts 02110

Charles F. Wright
Centel Corporation
8725 Higgins Street
Chicago, Illinois 60631

Rich Larochelle
National Rural Electric Coop Association
1800 Massachusetts Aveneue, N.W.
Washington, D.C. 20036

and was hand delivered to the following:

Chairman James H. Quello
Federal Communications Commission
1919 M Street, N.W.
Room 802
Washington, D.C. 20554

Commissioner Ervin S. Duggan
Federal Communications Commission
1919 M Street, N.W.
Room 832
Washington, D.C. 20554

Commissioner Andrew C. Barrett
Federal Communications Commission
1919 M Street, N.W.
Room 844
Washington, D.C. 20554

Kathleen B. Levitz
Acting Chief, Common Carrier Bureau
Federal Communications Commission
1919 M Street, N.W., Room 500
Washington, D.C. 20554

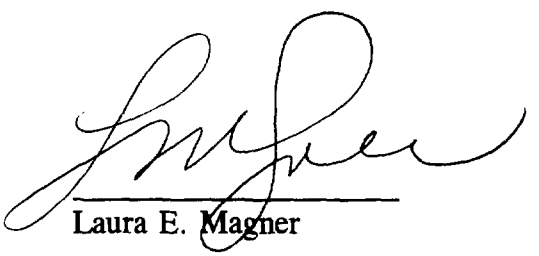
Renee Licht
Office of General Counsel
Federal Communications Commission
1919 M Street, N.W.
Room 614
Washington, D.C. 20554

David R. Siddall
Office of Engineering & Technology
Federal Communications Commission
2025 M Street, N.W.
Room 7102-A
Washington, D.C. 20554

Thomas Derenge
Office of Engineering & Technology
Federal Communications Commission
2025 M Street, N.W.
Room 7332
Washington, D.C. 20554

Dr. Thomas P. Stanley
Chief Engineer
Federal Communications Commission
2025 M Street, N.W.
Room 7002
Washington, D.C. 20554

Rodney Small
Office of Engineering & Technology
Federal Communications Commission
2025 M Street, N.W.
Room 7332
Washington, D.C. 20554



Laura E. Magner